

ADDITIONS TO FUNGI OF MADRAS—III*

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(10) *Physalospora pterolobii* Ramakrishnan, T. S. and K. sp. nov.

Spots circular, isolated, epiphyllous, yellowish green with black centre; *perithecia* one to four in a spot, immersed in the tissue, deep-seated, globose, ostiolate, $290 \times 266 \mu$ ($259-335 \times 222-315 \mu$), peridium of two to three layers of dark brown cells, thicker at the apex near the ostiole; *asci* cylindric-elongate, $107 \times 14 \mu$ ($85-136 \times 9-19 \mu$), produced from the base and the sides, 8-spored; *ascospores* oblong, one-celled, hyaline, uniseriate, $13 \times 5 \mu$ ($11-18 \times 4-7 \mu$); paraphysate, *paraphyses* filiform; *pycnidia* immersed in the tissue, associated with the perithecia, globose, containing minute, hyaline, rod-shaped, spores. The pycnidium resembles a spermatogonium.

On living leaves of *Pterolobium indicum* A. Rich., Kallar (Coimbatore district) 9-X-1946, T. S. Ramakrishnan.

Maculae orbiculares, epiphyllae; *perithecia* 1-4 per maculam, subepidermia, globosa, ostiolata, paraphysata, *paraphyses* filiformes; *asci* elongati-cylindrici, $107-14 \mu$, octosporiati; *ascosporidia* oblongata unicellata, hyalina, uniseriata, $13 \times 5 \mu$; *pycnidia* subepidermia, globosa, prope perithecia, *pycnidiosporidia* minuta, hyalina, baculoformia.

In vivis foliis *Pterolobi indici* A. Rich., Kallar (Coimbatore) 9-X-1946, T. S. Ramakrishnan.

The leaf is thickened at the region of infection due to the enlargement of the mesophyll cells.

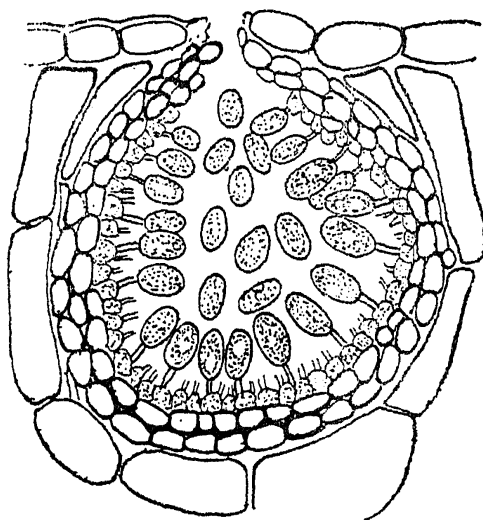
* Part I of this series was published in *The Proceedings of the Indian Academy of Sciences*, January 1947, 25, No. 1.

Part II in the same Journal, June 1947, 25, No. 6.

The type specimens have been deposited in the Herbarium of the Government Mycologist, Coimbatore, and Herb. Crypt. Ind. Orient., New Delhi.

(11) *Physalospora heterostemmae* Ramakrishnan, T. S. and K., sp. nov.

Perithecia epiphyllous, gregarious, groups scattered, 4-10 or more in each group, innate, extending up to the spongy parenchyma, erumpent, dark-brown to sepia, ostiolate, peridium of two to three layers of thick-walled dark-brown, polygonal cells, $178 \times 170 \mu$ ($155-203 \times 150-185 \mu$), paraphysate, *paraphyses* linear and septate; *asci* clavate, hyaline, 8-spored $74 \times 13 \mu$ ($64-93 \times 7-15 \mu$); *ascospores* irregularly uniseriate, one-celled oblong, hyaline, $15 \times 7 \mu$ ($11-19 \times 6-9 \mu$); *pycnidia* of two kinds, occurring near the perithecia; one type of pycnidium immersed, globose, $111 \times 111 \mu$ ostiolate, with a dark brown, two to three layered peridium; *pycnidiospores* oval, hyaline, one-celled, and resemble those of *Macrophoma*; second type of pycnidium also globose, immersed, in the tissue, producing large numbers of minute, hyaline, rod-shaped pycnidiospores. This structure resembles a spermogonium (Plate II, c).



TEXT-FIG. 1. Pycnidium (*Macrophoma* stage) $\times 400$.

On living leaves of *Heterostemma tanjorensis* W. and A., Kallar (Coimbatore district), 9-X-1946, T. S. Ramakrishnan and K. Ramakrishnan.

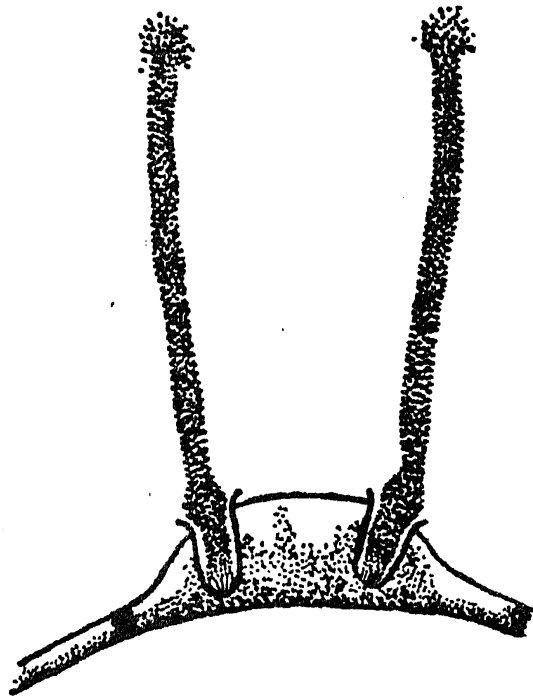
Perithecia epiphylla, gregaria, subepidermia, erumpentia, ostiolata, $178 \times 170 \mu$; *asci* clavati, hyalini, $74 \times 13 \mu$, octosporiati; *ascosporidia*, irregulariter uniseriatea, oblongata, hyalina, $15 \times 7 \mu$; *paraphyses* adsunt murus asci gelatinous in aquæ; 2 genera pycnidium, 1) immersa, globosa, *pycniosporidia* hyalina, ovalia unicellata, 2) globosa, *pycniosporidia* minuta, hyalina, baculo-formia.

In vivis foliis *Heterostemma tanjorensis* W. and A., Kallar (Coimbatore district) 9-X-1946, T. S. Ramakrishnan et K. Ramakrishnan.

The asci start from the base of the perithecium and when mounted in water exhibit intense gelatinisation of the wall and consequently a clear translucent area is seen between the spore and the outer wall of the ascus.

(12) *Kernia lauricola* Thirumalachar

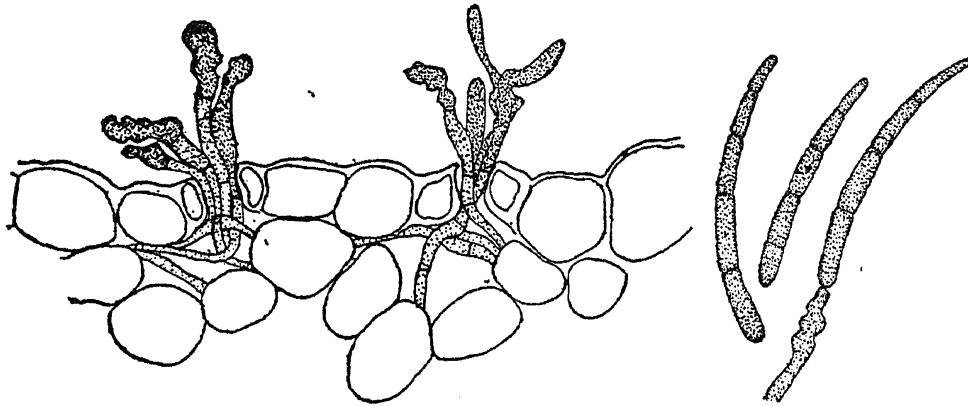
This was collected on two hosts belonging to the Lauraceæ—*Phæbe paniculata* Nees. and *P. Wightii* Meissn., from several places in the Nilgiris (Ootacamund, Coonoor and Naduvattam). Only the telial stage was available. The telia are columnar and are produced in a circle from the margins of small circular swellings on the lower surface of the leaves (Plate *a*). Six to twelve such columns are produced in each ring. The telium takes its origin from a layer of long parallelly arranged hymenial cells at the bottom of a cup-like depression. The teliospores are stipitate, two-celled with long stalks. The columnar structure is produced by the plaiting together of the stalks of the released teliospores. The teliospores measure $35 \times 22 \mu$ ($26-42 \times 16-28 \mu$). The two cells of the teliospores are almost equal in length. They are deep chestnut brown in colour and have smooth walls. There is a constriction between the two cells. This rust closely resembles the species recorded by Thirumalachar (1946) on *Litsea* sp.

TEXT-FIG. 2. Telia of *K. lauricola* $\times 100$.(13) *Cercospora adinae* Ramakrishnan, T. S. and K., sp. nov.

Spots hypophyllous, without any definite outline, forming irregular often confluent ochraceous-orange patches, involving much of the leaf surface; mycelium internal, septate; *conidiphores* hypophyllous, densely tufted, emerging through the stomata, branched or unbranched, filled with deep orange contents and repeatedly geniculate at the apices; *conidia* elongate, broad below the middle, and tapering towards the apex, base

flattened, apex rounded, straight or curved, 3-7 septate, $54-84 \times 4-7 \mu$, contents hyaline to orange.

On living leaves of *Adina cordifolia* Hook., Walayar (Malabar district) 31-XII-1936, T. S. Ramakrishnan and K. Ramakrishnan.



TEXT-FIG. 3. Conidiophores and conidia of *Cercospora adinae* $\times 400$.

Panni hypophylli, silacei-lutei colores, *conidiophora* dense fasciculata, emergentia per stomata, septata, contents dense lutea, *conidia* elongata, obclavata, recta vel curva, 3-7 septata, hyalina vel lutea, $54-84 \times 4-7 \mu$.

In vivis foliis *Adinae cordifoliae* Hook. Walayar (Malabar district) 31-XII-1946, T. S. Ramakrishnan et K. Ramakrishnan.

This fungus does not form definite spots on the leaves and often the incidence of the infection cannot be detected from the upper surface. Since this fungus is found to be different from the others recorded on plants belonging to the family Rubiaceae it is described as a new species.

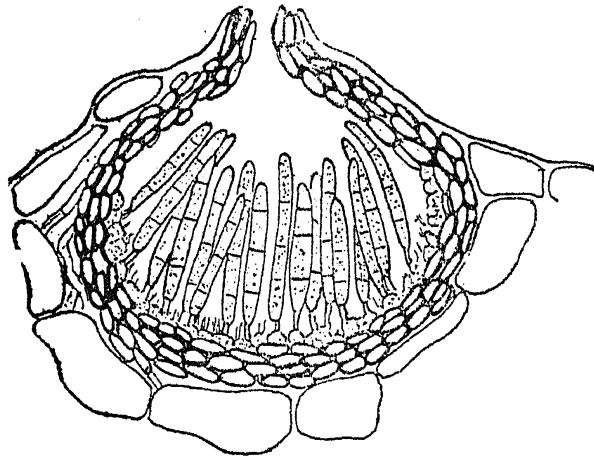
(14) *Septoria erythrinae* Ramakrishnan T. S. and K., sp. nov.

Spots numerous, small, angular, bounded by veinlets, light green in colour; *pycnidia* hypophyllous, 2-5 in a spot, black, subepidermal, immersed in the tissue, slightly erumpent, globose, ostiolate, $150 \times 90 \mu$, with a peridium of two to three layers of brown cells; *pycnidiospores* long, cylindrical, $44 \times 4 \mu$ ($36-58 \times 4-6 \mu$), straight, three-septate, hyaline produced on very short stalks.

On living leaves of *Erythrina* sp. Kallar (Coimbatore district) 9-X-1946 T. S. Ramakrishnan and K. Ramakrishnan.

Macuale parvae, angulares, leviter virides; *pycnidia* hypophylla, 2-5 per maculam, nigra, subepidermia, globosa, ostiolata, $150 \times 90 \mu$; *pycniosporidia* cylindrica, recta, triseptata, hyalina, brevipedicellata, $44 \times 4 \mu$ ($36-58 \times 4-6 \mu$).

In vivis foliis *Erythrinae* sp. Kallar (Coimbatore district) 9-X-1946;
T. S. Ramakrishnan et K. Ramakrishnan.



TEXT-FIG. 4. Pycnidium of *Septoria erythrinae* $\times 400$.

The spores come out of the ostiole in the form of thread-like whitish masses. When examined with a lens these can be readily made out in fresh specimens as white peg-like projections from the pycnidia ('spore horns').

Phlyctæna brunneola (Berk.) Sacc. (*Septoria brunneola* Berk.) has been described on dead branches and stem of *Erythrina crista-galli*. Saccardo does not give the measurements of the pycnidiospores or the pycnia. The fungus under study is however found parasitic on living leaves of *Erythrina* sp. and is not a *Phlyctæna*. It is undoubtedly new to science and is proposed as a new species.

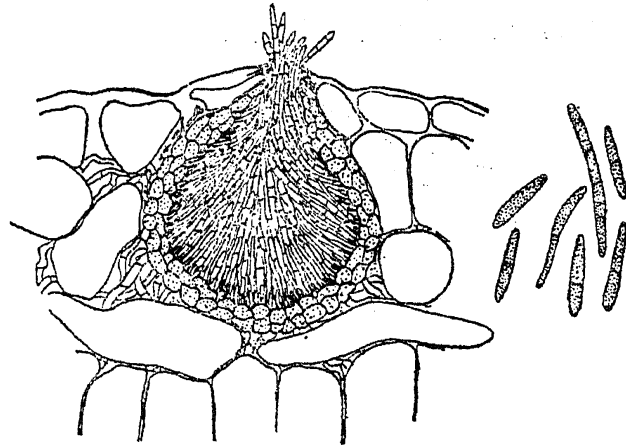
(15) *Septoria thespesiæ* Ramakrishnan T. S. and K., sp. nov.

Spots circular, amphigenous, isolated or confluent, 4–15 mm. in diameter, upper surface blackish brown with grey centre and lower surface sepia coloured; *pycnidia* globose, innate, immersed in the tissue, numerous in the spot, $88 \times 93 \mu$ ($74-96 \times 63-111 \mu$), peridium of two to three layers of small cells, *pycniospores* straight cylindrical with tapering ends 2–6 septate, hyaline, borne on very short stalks, $28 \times 4 \mu$ ($9-37 \times 2-4 \mu$).

On living leaves of *Thespesia populnea* Cav. Coimbatore, 18-ii-1947, T. S. Ramakrishnan and K. Ramakrishnan.

Maculæ orbiculares, amphigenæ; *pycnidia* globosa, subepidermia, ostiolata; *pycniosporidia* recta, cylindrica, cum terminis angustitatis, 2–6 septata, hyalina, brevipedicellata, $28 \times 4 \mu$ ($9-37 \times 2-4 \mu$).

In vivis foliis *Thespesiæ populneæ* Cav. Coimbatore, 18-ii-1947, T. S. Ramakrishnan et K. Ramakrishnan.



TEXT-FIG. 5. Pycnidium of *Septoria thespesiae*, pycnidiospores $\times 300$.

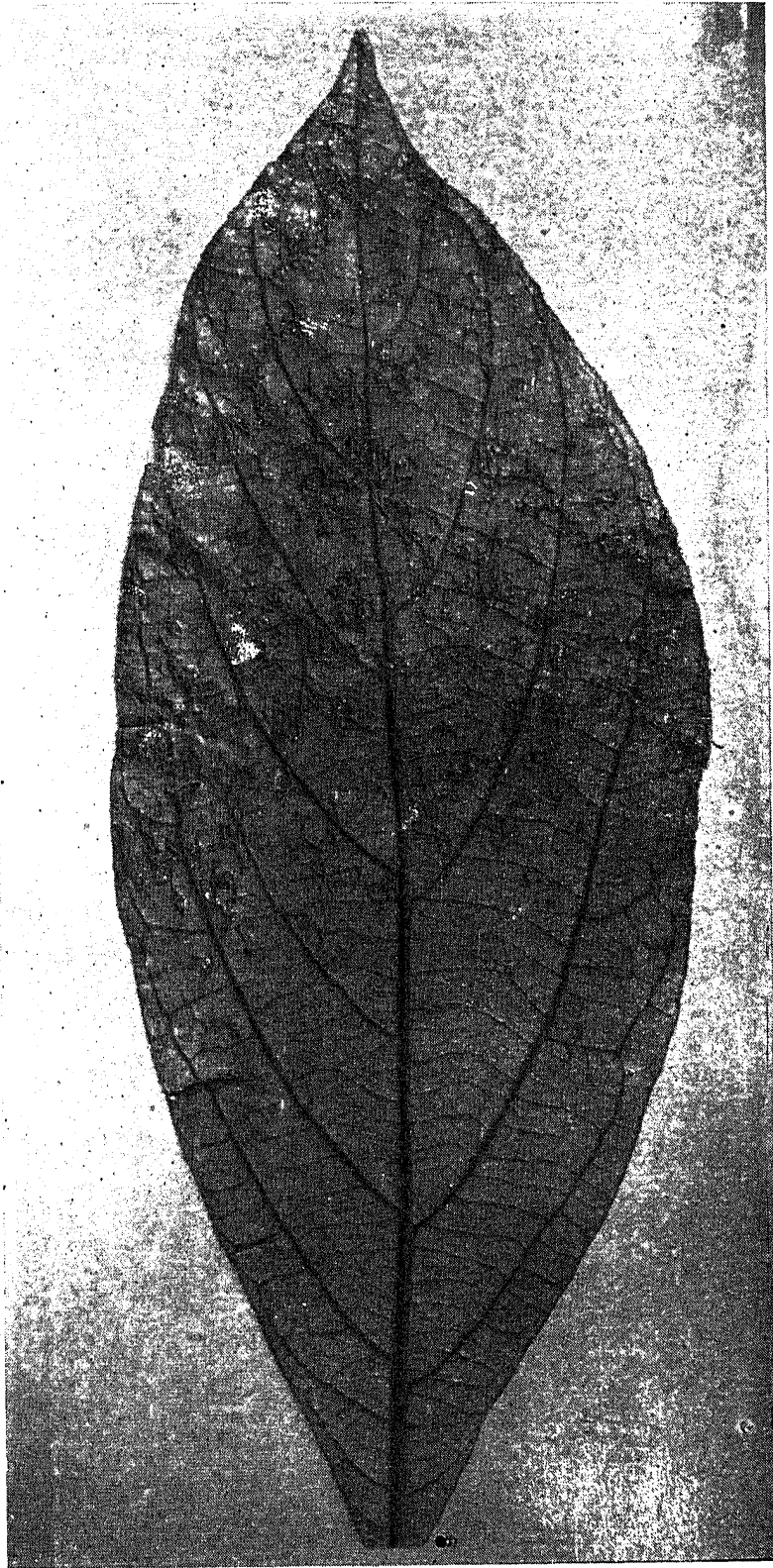
This is very common on *Thespesia populnea* throughout the province all through the year. The spots become almost black on old yellow leaves. The pycnidiospores come out in masses as 'spore horns' through the ostiole of the pycnidium.

ACKNOWLEDGMENT

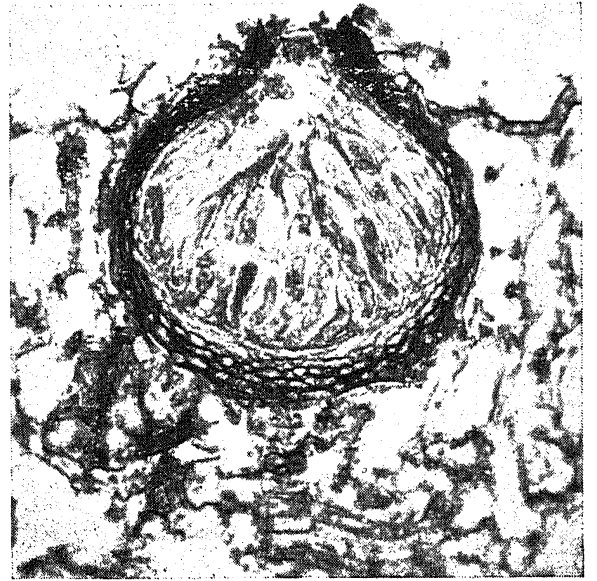
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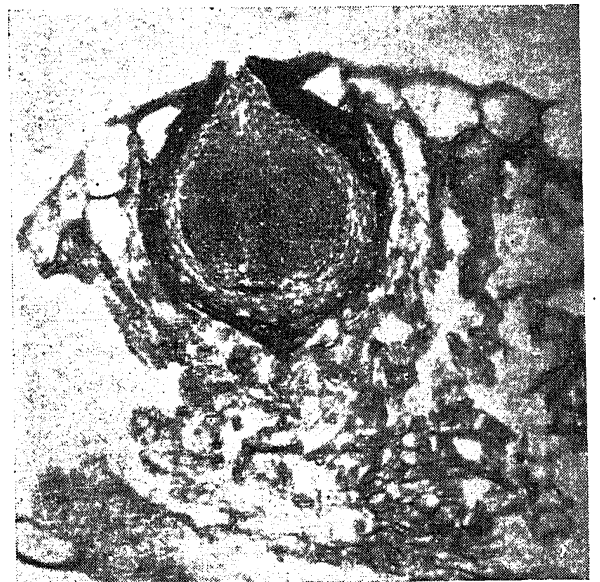
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a



b



c

- a. Leaf of *Phæbe paniculata* showing the telial columns of *Kernia lauricola*.
b. Section of a perithecium of *Physalospora heterostemmæ*.
c. Section of a spermagonium of *Physalospora heterostemmæ*.